



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/580,768	05/25/2006	Masaru Takeshita	SHIGA7.051APC	8323
20995	7590	11/18/2008	EXAMINER	
KNOBBE MARTENS OLSON & BEAR LLP			EOFF, ANCA	
2040 MAIN STREET			ART UNIT	PAPER NUMBER
FOURTEENTH FLOOR			1795	
IRVINE, CA 92614				
		NOTIFICATION DATE		DELIVERY MODE
		11/18/2008		ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

jcartee@kmob.com  
eOAPilot@kmob.com

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/580,768	TAKESHITA ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	ANCA EOFF	1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on 20 August 2008.

2a) This action is **FINAL**.                    2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 11 and 13-22 is/are pending in the application.

4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5) Claim(s) \_\_\_\_\_ is/are allowed.

6) Claim(s) 11 and 13-22 is/are rejected.

7) Claim(s) \_\_\_\_\_ is/are objected to.

8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All    b) Some \* c) None of:

1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) Notice of References Cited (PTO-892)

2) Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 07/08/2008.

4) Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.

5) Notice of Informal Patent Application

6) Other: \_\_\_\_\_.

## DETAILED ACTION

1. Claims 11 and 13-22 are pending in the application. Claims 1-10 and 12 are canceled.
2. The foreign priority document JP 2003-399663, filed on November 28, 2003 was received and acknowledged. However, in order to benefit of the earlier filing date, a certified English translation is required.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshioka et al. (US Patent 5,968,691).

With regard to claim 11, Yoshioka et al. disclose a method of forming a resist pattern comprising the following steps: resist-coating, pre-baking, light-exposure, post-baking and developing (abstract), wherein the resist composition may comprise an acetal protective group resin (column 11, lines 4-8), so the resist composition of Yoshioka et al. is equivalent to the positive resist of the instant application.

Yoshioka et al. disclose that the dependency of the average line width ( $\mu\text{m}$ ) of PEB temperature ( $^{\circ}\text{C}$ ) is shown in the graph below:

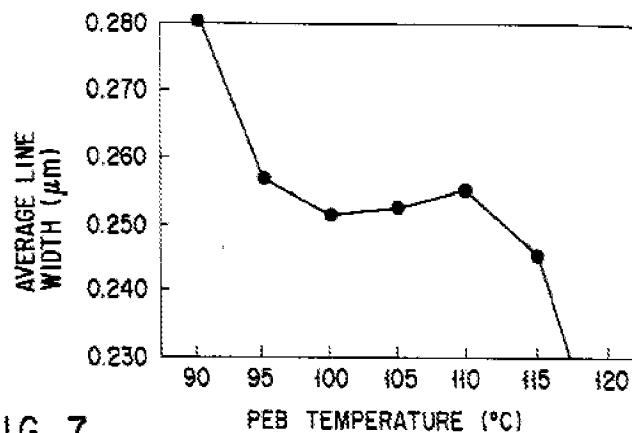


FIG. 7

Yoshioka et al. further disclose that the average line width tends to decrease with the increase in the PEB temperature and within the range of 95°C to 115°C, the line width of the pattern was stabilized in the vicinity of the target value (column 11, lines 13-17). The target value for the line width of the pattern was established at 0.25mm and the PEB temperature is 110°C (column 11, lines 22-24, 37-38 and 50-52).

The graph of Yoshioka et al. comprises a peak-shaped portion and in this graph the PEB temperature of 110°C is equivalent to the preliminary PEB temperature corresponding to a point where the size of formed pattern reaches a maximum value in the graph.

Yoshioka et al. further disclose that the PEB treating temperature is corrected to an optimum value by a baking temperature controller (column 10, lines 5-6) so it is the examiner's position that in the process of Yoshioka et al. the preliminary PEB temperature and the optimum PEB temperature are identical.

The method of Yoshioka et al. renders obvious the method of forming a resist pattern of the instant application.

5. Claims 13-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshioka et al. (US Patent 5,968,691) in view of Uetani et al. (US Pg-Pub 2001/0044070).

With regard to claim 13, Yoshioka renders obvious the process of claim 11 of the instant application (see paragraph 4 of the Office Action), but fails to disclose the positive chemical amplification resist of the instant application

Uetani et al. disclose a chemical amplification type positive resist composition, said composition comprising a 2-ethyl-2-adamatyl methacrylate/3-hydroxy-1-adamatyl methacrylate/ $\alpha$ -methacryloxyloxy- $\gamma$ -butyrolactone copolymer and an acid generator (Comparative Example 1 in table 1, par.0140 and par.0103). This composition shows excellent adhesion to the substrate, good resolution and sensitivity (Comparative Example 1 in table 2 in par.0141 and par.0132-0135).

The 2-ethyl-2-adamatyl methacrylate/3-hydroxy-1-adamatyl methacrylate/ $\alpha$ -methacryloxyloxy- $\gamma$ -butyrolactone copolymer in a molar ratio of 2: 1: 1 (par.0103) is equivalent to the component (A) of the instant application, wherein :

- 2-ethyl-2-adamatyl methacrylate is equivalent to the unit (a-1);
- $\alpha$ -methacryloxy- $\gamma$ -butyrolactone is equivalent to the unit (a-2), and
- 3-hydroxy-1-adamatyl methacrylate is equivalent to the unit (a-3).

Since the 2-ethyl-2-adamatyl methacrylate / $\alpha$ -methacryloxy- $\gamma$ -butyrolactone/ 3-hydroxy-1-adamatyl methacrylate copolymer with a molar ratio 2:1:1 comprises the same components as the resins of the instant application and in similar amounts, as disclosed in paragraphs 0055, 0084, 0086, 0087, 0090-0094 of the instant application

and, absent a reason to the contrary, it is the examiner's position that the 2-ethyl-2-adamatyl methacrylate / $\alpha$ -methacryloxy- $\gamma$ -butyrolactone/ 3-hydroxy-1-adamantyl methacrylate copolymer with a molar ratio 2:1:1 has a glass transition temperature (Tg) in the range of 100 to 170°C.

"[T]he discovery of a previously unappreciated property of a prior art composition, or of a scientific explanation for the prior art's functioning, does not render the old composition patentably new to the discoverer." *Atlas Powder Co. v. Ireco Inc.*, 190 F.3d 1342, 1347, 51 USPQ2d 1943, 1947 (Fed. Cir. 1999). Thus the claiming of a new use, new function or unknown property which is inherently present in the prior art does not necessarily make the claim patentable. *In re Best*, 562 F.2d 1252, 1254, 195 USPQ 430, 433 (CCPA 1977). (MPEP 2112)

It would have been obvious to one of ordinary skill in the art at the time of the invention to use the chemically amplified positive resist composition of Uetani et al. in the process of forming a resist pattern of Yoshioka, in order to take advantage of the properties of the chemically amplified positive resist composition of Uetani et al., such as adhesion to the substrate, sensitivity and resolution (Uetani et al., Comparative Example 1 in table 2 in par.0141 and par.0132-0134).

With regard to claim 14, Uetani et al. disclose that the molecular weight of the 2-ethyl-2-adamatyl methacrylate / $\alpha$ -methacryloxy- $\gamma$ -butyrolactone/ 3-hydroxy-1-adamantyl methacrylate copolymer is about 8,000 (par.0103).

With regard to claims 15 and 16, the 2-ethyl-2-adamatyl methacrylate unit of the 2-ethyl-2-adamatyl methacrylate / $\alpha$ -methacryloxy- $\gamma$ -butyrolactone/ 3-hydroxy-1-adamantyl methacrylate copolymer (par.0103) is equivalent to the group of formula (I), wherein R is a methyl group and R<sup>1</sup> is an ethyl group.

With regard to claim 17, the  $\alpha$ -methacryloxy- $\gamma$ -butyrolactone unit of the 2-ethyl-2-adamatyl methacrylate / $\alpha$ -methacryloxy- $\gamma$ -butyrolactone/ 3-hydroxy-1-adamantyl methacrylate copolymer (par.0103) is equivalent to the group of formula (IV), wherein R is a methyl group and R<sup>5</sup> is hydrogen.

With regard to claim 18, the 3-hydroxy-1-adamantyl methacrylate unit of the 2-ethyl-2-adamatyl methacrylate / $\alpha$ -methacryloxy- $\gamma$ -butyrolactone/ 3-hydroxy-1-adamantyl methacrylate copolymer (par.0103) is equivalent to the group of formula (VI), wherein R is a methyl group and n=1.

With regard to claims 19-21, the 2-ethyl-2-adamatyl methacrylate / $\alpha$ -methacryloxy- $\gamma$ -butyrolactone/ 3-hydroxy-1-adamantyl methacrylate copolymer with a molar ratio 2:1:1 (par.0103) is equivalent to the component (A) having 50 mol % of unit (a-1), 25 mol % of unit (a-2) and 25 mol% of unit (a-3) of the instant application.

With regard to claim 22, Uetani et al. further disclose that the chemical amplification type positive resist composition further comprises a nitrogen-containing basic compound in an amount of 0.075% by weight relative to the resin (see Comparative Example 1 in table 1 in par.0140).

### ***Response to Arguments***

7. Applicant's arguments with respect to claims 11 and 13-22, filed on August 20, 2008 have been considered but are moot in view of the new grounds of rejection.

***Conclusion***

8. Applicant's amendment necessitated the new grounds of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ANCA EOFF whose telephone number is (571)272-9810. The examiner can normally be reached on Monday-Friday, 6:30 AM-4:00 PM, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cynthia H. Kelly can be reached on 571-272-1526. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/A. E./  
Examiner, Art Unit 1795

/Cynthia H Kelly/  
Supervisory Patent Examiner, Art Unit 1795